

A SYNOPSIS OF NORTH AMERICAN ANAPHOIDEA

(Hymenoptera: Mymaridae)

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The mymarid genus *Anaphoidea* is probably of cosmopolitan distribution for species have been described from Europe, Africa, Australia, North America, and the West Indies. Two species have been utilized in biological control projects, and an appreciable reduction in the numbers of the eucalyptus weevil, *Gonipterus scutellarius* Gyll., followed the introduction of *Anaphoidea nitens* into South Africa from Australia (Clausen, 1940).

The published host records confined the genus to species of weevils until Bakkendorf (1934) reared *A. conotracheli* (Girault) from the eggs of a Chrysomelid and also from the eggs of a Dytiscid, *Agabus* sp. An entirely new host record, which extends the host range of the genus to the Hemiptera (*Gerris* sp.) is introduced in this paper.

Recent collections made in California indicate that the genus is by no means an uncommon element in the faunal pattern of the pacific slope, and four new species are described herein.

Anaphoidea conferta Doutt, new species

Female. Length 0.55 mm. General body color very dark brown. Eyes fuscous. Trochanters, femora, tibiae, tarsi except metatarsal segments pallid testaceous; metatarsi darker. Forewings fumated except for clear area extending longitudinally through wing blade center, expanding distally. Another clear area beneath anterior portion of venation. Posterior wings fumated, slightly maculate.

Antennae inserted high on face. Structure as in Fig. 1. Scape strongly convex ventrally. Pedicel half length of scape. Funicle unusual for genus, segments short, subglobular to quadrate. Funicle segment 1 small, subglobular. Funicle 3 largest funicle segment, a third longer than wide, longer and broader than segment 2. Funicle segment 4 wider than long. Funicle segments 5, 6 slightly longer than wide, subequal to segment 3. Club longer than last 3 funicle segments considered together; nearly twice funicle width. Club divided, distal segment longer than basal segment.

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Head about as wide as long, without distinct sculpturing. Sparsely covered with setae, alveoli pallid, conspicuous.

Thorax normal for genus, mostly smooth; faint reticulation on parapsides and scutum. Faint striations on scutellum. Parapsidal sutures distinct.

Forewings as in Fig. 2. Relatively long considering body size. Longest marginal cilia somewhat longer than greatest wing width. About 10 lines of discal cilia at greatest wing width. Posterior wings with complete row of discal cilia near caudal margin. Similar row of 10-12 cilia near distal half of cephalic margin.

Trochanters two segmented, femora somewhat swollen. Foretibial spur not forked. Tarsal segments short, basitarsi barely longer than segment 2.

Abdomen ovoid, scarcely longer than wide, sparsely covered with long setae. Ovipositor not projecting beyond apex of abdomen, nor produced anteriorly beneath thorax.

Male. Unknown.

Described from single specimen mounted in gum damar. *Holotype*, female, collected by sweeping native vegetation at OAKVILLE, CALIFORNIA, on May 3, 1948 (R. L. Doutt).

Type deposited in collection of the Division of Biological Control, University of California.

The antennal characters, particularly the expanded scape and the subglobular funicle segments, serve readily to distinguish *conferta* from all other North American species.

Anaphoidea gerrisophaga Doutt, new species

Female. Length 0.50 mm. Head, thorax, abdomen, antennae of brown color. Legs, somewhat lighter. Margin of forewings fumated. Posterior wings fumated. Eyes deep red, nearly black. Ocelli red.

Antennae inserted high on face, general conformation as in Fig. 1. Scape, pedicel of equal width; funicle segment one small, normal for genus; segment 2 smaller than 3; segments 5, 6 somewhat longer and wider than segment 2. Club divided, segments subequal; club wider than scape.

Head about as wide as long; distinctly broader than thorax. Frontovortex reticulate, bearing 4 distinct, erect setae as viewed frontally; another pair of setae located near upper margin of each eye. Eyes slightly hispid. Ocelli large. Mandibles with 3 large, coarse, equal teeth.

Pronotum with 4 large curved setae. Mesoscutum with 2 prominent setae, each near anterior portion of respective parapsidal suture. Each axilla with single seta.

Forewings very narrow, fig. 2, unusual for genus, nearly parallel sided with no marked expansion distally. Tibial spur of foreleg bifid, basitarsus longer than following segment.

Abdomen long, oval, nearly twice longer than wide. Ovipositor barely projecting beyond apex of abdomen, not produced anteriorly beneath thorax.

Male. Unknown.

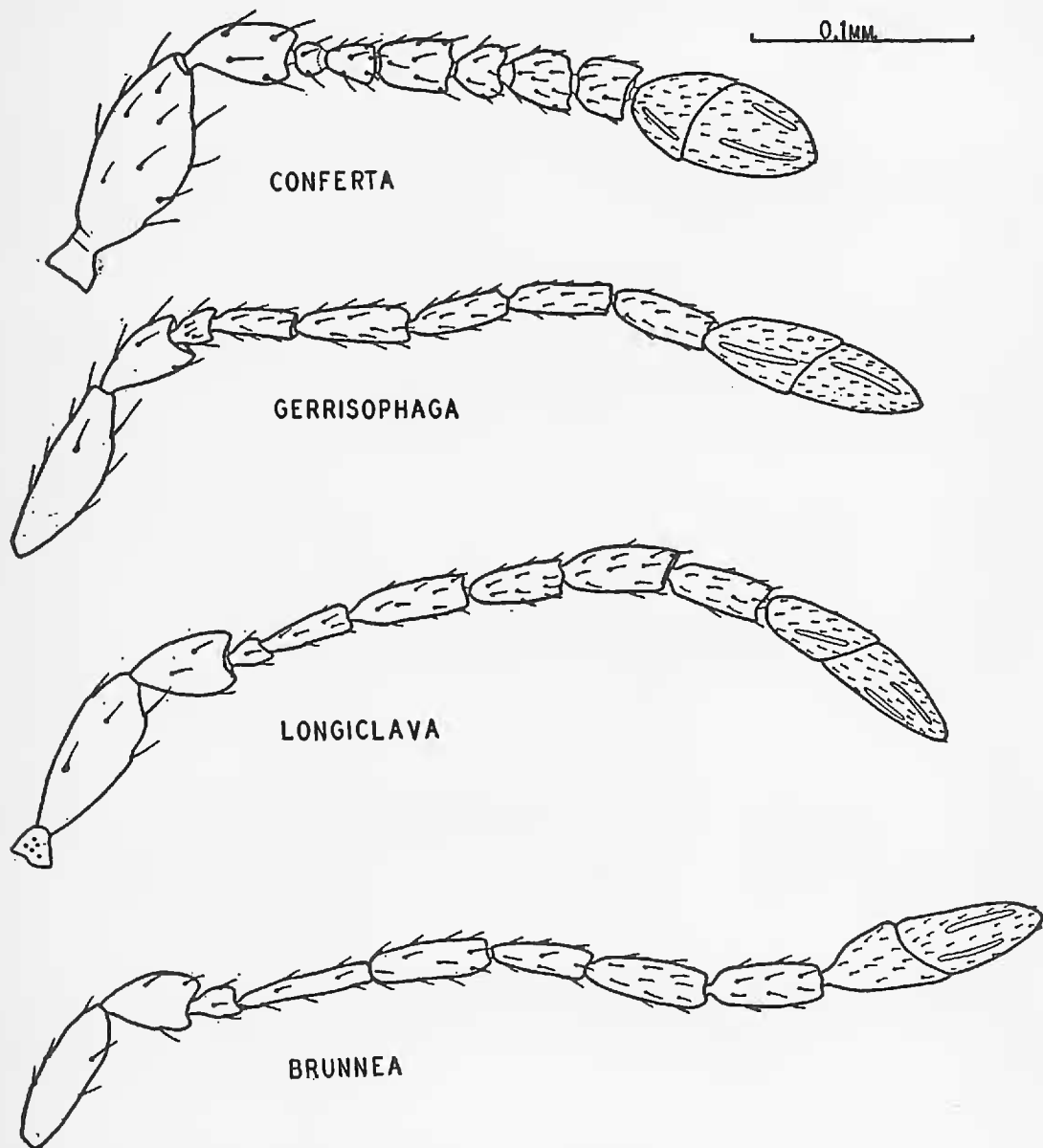


Figure 1. Antennae of new species of *Anaphoidea* from California.

Described from two specimens mounted in gum damar, on individual slides. *Holotype*, female, reared from eggs of *Gerris* sp., LAKE BRITTON, SHASTA COUNTY, CALIFORNIA, on June 29, 1947 (R. L. Usinger). *Paratype*, female, collected on window, El Cerrito, California, on June 11, 1948 (R. L. Doutt).

Holotype and paratype in collection of Division of Biological Control, University of California.

This species is characterized by the very narrow forewings which are nearly parallel sided and lack any marked distal expansion. The prominent setae on thorax and frontovertex together with the large ocelli also serve to separate *gerrisophaga* from other American species. The *Gerris* host record is unique for the genus.

Anaphoidea longiclava Doutt, new species

Female. Length 0.45 mm. Color variation in specimens examined ranged from pallid brown to dark brown. Forewings mostly hyaline, slightly fumated in band near apex of venation and around distal wing margin. Eyes black, ocelli red.

Antennae inserted high on face, form as in Fig. 1. Scape convex ventrally, with slight reticulate sculpturing. Scape, pedicel of equal width. Funicle segment 1 small, segments 2, 4 subequal, smaller than segment 3. Segment 5 subequal to 3. Segment 6 of same length as segments 2, 4 but wider. Club elongate, divided, somewhat wider than funicle, distal segment longer than basal segment.

Head about as wide as long. Area posterior to ocelli with reticulate sculpturing, face and frontovertex nearly smooth.

Thorax normal for genus, nearly smooth but scutellum finely striate, scutum with faint reticulations anteriorly. Legs normal, foretibial spur curved, bifid. Basitarsi about equal in length to following segments, not distinctly longer. Forewings of moderate width, fig. 2. Posterior wings with sparse row of discal cilia near cephalic margin and more complete row near caudal margin.

Abdomen ovoid, distinctly shorter than thorax, dorsal surface with transverse rows of long conspicuous setae. Ovipositor slightly produced forward beneath thorax, ovipositor barely projecting from apex of abdomen.

Male. Unknown.

Described from two specimens mounted in gum damar on individual slides. *Holotype*, female, collected by sweeping native vegetation at MORGAN HILL, CALIFORNIA, on July 2, 1947 (R. L. Doutt). *Paratype*, female, collected by sweeping *Salix* sp. at Rio Nido, California, on May 28, 1947.

Holotype and paratype deposited in collection of Division of Biological Control, University of California.

The species *longiclava* is easily separated from *conotracheli* by the narrow club, the relatively more elongate funicle segments, and by lacking a marked projection of the ovipositor beneath the thorax.

Anaphoidea brunnea Doutt, new species

Female. Length 0.46 mm. Head, thorax, abdomen dark brown. Legs, antennae somewhat lighter. Forewings hyaline except for indistinct fumation near venation and along distal portion of cephalic margin. Posterior wings with slight maculation. Eyes, ocelli black.

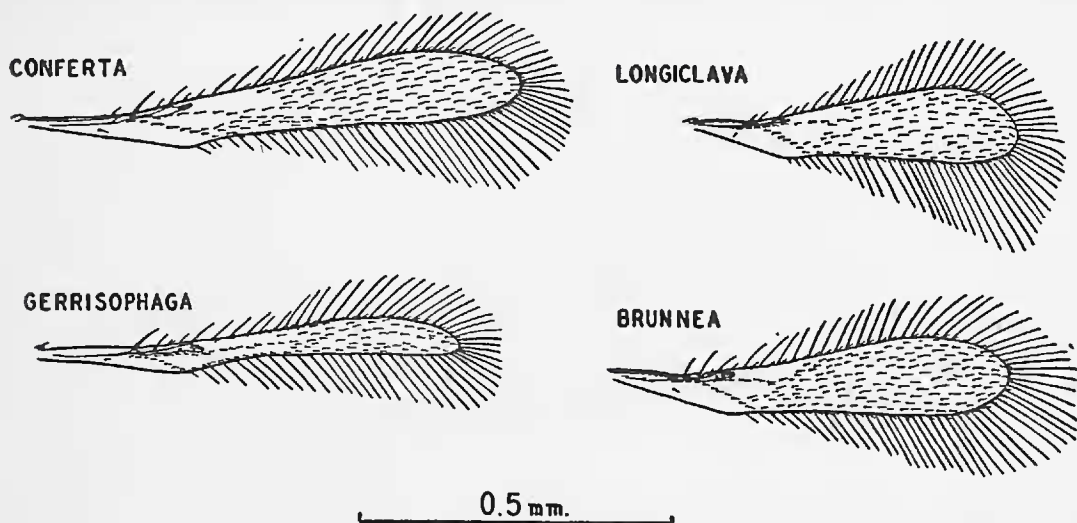


Figure 2. Wing outlines of new species of *Anaphoidea* from Calif.

Antennae inserted high on face. Scape not strongly convex ventrally, fig. 1. Pedicel slightly wider than scape, wider than funicle. Funicle segment 1 small, segment 2 longest, narrowest funicle segment. Funicle segment 4 distinctly smaller than 3 or 5. Segments 3, 5, 6 subequal. Club divided, widest antennal structure equal in length to funicle segments 5, 6, combined.

Head somewhat longer than wide. Thorax mostly smooth with barely perceptible striations. Fore femora more swollen than middle or hind femora. Spur of foretibia curved, bifid at tip. Basitarsus of foreleg distinctly longer than subsequent segment. Basitarsi of middle and posterior legs barely longer than subsequent segments. Forewings of moderate width, Fig. 2. Posterior wings with a row of discal cilia near distal portion of wing blade center; a sparse row of discal cilia near cephalic margin, another complete row on caudal margin.

Abdomen much shorter than thorax, ovoid. Ovipositor distinctly produced forward beneath thorax.

Male. Unknown.

Described from four specimens mounted in gum damar on individual slides. *Holotype*, female, and 2 female paratypes collected by sweeping native vegetation at FORESTVILLE, SONOMA COUNTY, CALIFORNIA, on April 16, 1947 (R. L. Doutt). One paratype female collected on window, El Cerrito, California, on March 6, 1948 (R. L. Doutt). Holotype and 2 paratypes deposited in collection of Division of Biological Control, University of California. One paratype deposited in U. S. National Museum.

In comparison with *calendrae* and *conotracheli*² this species is easily differentiated by the second funicle segment which is distinctly longer than segment 3. The forewings are relatively broader than those of *calendrae*.

KEY TO NORTH AMERICAN ANAPHOIDEA

FEMALES

1. Funicle segments except segment 1 distinctly longer than wide2
 - Funicle segments subglobular or quadrate, scape strongly convex ventrally*conferta* Doutt
2. Funicle segment 2 distinctly longer than segment 3.....3
 - Funicle segment 2 not distinctly longer than 3, may be equal to 34
3. Funicle segment 2 narrowest funicle segment, segment 4 smaller than all segments except 1. Species brown, moderate size*brunnea* Doutt
 - Funicle segment 2 no slenderer than other segments; cephalic tibiae yellow, body black, large species*sordidata* Girault³
4. Forewings quite narrow, more or less parallel sided without marked distal expansion, see fig. 2. Funicle 2 distinctly shorter than 3.....*gerrisophaga* Doutt
 - Forewings of moderate width, normal, if narrow then funicle 2 subequal to 3.....5
5. Basitarsi distinctly longer than following segments. Funicle segment 2 nearly equal to segment 3. Funicle segment 6 shorter than any segment except segment 1.....*calendrae* Gahan
 - Basitarsi not distinctly longer than following segments.....6
6. Ovipositor strongly produced anteriorly beneath thorax.....*conotracheli* (Girault)⁴
 - Ovipositor not strongly produced anteriorly beneath thorax.....*longiclava* Doutt

LITERATURE CITED

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³No specimens of *sordidata* examined, data in key taken from literature.

⁴Girault (Private publication) synonymized *pullicrura* Girault and *luna* Girault with *conotracheli* (Girault).